

IN THE CLAIMS

This listing of the claims will replace all prior versions and listings of claims in the application.

1-7. (Canceled)

8. (Currently amended) A method to implement a medium access control (MAC) protocol for a local-area optical wavelength division multiplexed (WDM) network, the method comprising:

controlling inter-node communication on the WDM network by transmitting a first control packet over a control channel of the WDM network, the WDM network ~~comprising~~ including a scheduler, a data channel, and a plurality of nodes, each of the plurality of nodes coupled to the control channel and the data channel, the first control packet specifying a first one of the plurality of nodes in the network as a source node, a second one of the plurality of nodes in the network as a destination node, a value which corresponds to an amount of information which the source node can transmit, and a preview of a second control packet; and

after transmitting the first control packet, waiting a predetermined period of time related to the value specified in the first control packet.

9. (Previously Presented) The method of Claim 8, further comprising:
receiving the first control packet at each of the plurality of nodes in the network; and
in response to the source node receiving the first control packet, transmitting
from the source node onto the data channel an amount of information not greater than
the amount specified in the first control packet.
10. (Previously Presented) The method of Claim 8, wherein in response to the
destination node specified in the control packet receiving the first control packet, the
destination node monitors the data channel for data following the first control packet.
11. (Previously Presented) The method of Claim 10, wherein the destination node
specified in the first control packet retrieves the data from the data channel of the
network.
12. (Previously Presented) The method of Claim 8, wherein the amount of
information specified in the first control packet corresponds to a predetermined number
of data packets.
13. (Previously Presented) The method of Claim 9, wherein transmitting the amount
of information includes transmitting one or more data packets immediately or after a
delay known to both the scheduler and the node.

14. (Previously Presented) The method of Claim 8, wherein in response to the node to which the first control packet is addressed receiving packet, immediately or after a delay known to both the scheduler and the node transmitting no more bytes than are permitted by the first control packet.

15. (Previously Presented) The method of Claim 9, wherein receiving the first control packet at each of the plurality of nodes in the network includes passively tapping the control channel at each of the plurality of nodes in the network to receive the first control packet.

16. (Cancelled).

17. (Previously Presented) The method of Claim 14, further comprising dispatching the second control packet after waiting for the predetermined period of time.

18. (Previously Presented) The method of Claim 17, wherein at least one of a source node and a destination node specified in the second control packet is different than the source node and the destination node specified in the first control packet.

19. (Previously Presented) The method of Claim 8, wherein the control channel and the data channel are carried by the same fiber and wherein the first control packet on the control channel is "out-of-band" from data on the data channel.

20. (Previously presented) The method of Claim 8 wherein transmitting the first control packet includes transmitting the first control packet from a headend of the network.

21. (Previously Presented) The method of Claim 20, wherein transmitting the first control packet from a headend of the network includes the headend dispatching a scheduler allocation message (SAM).

22. (Previously Presented) The method of Claim 21 wherein the SAM specifies a source node address, a destination node address, and at least one of: (a) a number of bytes the source node may transmit to the destination node; and (b) an amount of time in which the source node may transmit.

23. (Currently amended) A scheduler ~~adapted for use in a network, said scheduler~~ comprising:

an interface to couple to a plurality of nodes in ~~the~~ a wavelength division multiplexed (WDM) network via ~~an~~ a unidirectional optical path in the network, said unidirectional optical path having a control channel and a data channel;

a control message processor to transmit on the control channel one or more control messages to each of the plurality of nodes, each of the control messages including a preview of a next control message, and each of the control messages allotting to at least one node a time period corresponding to a data transmission time for a node; and

a scheduler timing processor, in connection with said control message processor, to cause said control message processor to wait a period of time corresponding to the allotted data transmission time for a node prior to said control message processor releasing another control message.

24. (Previously presented) The scheduler of Claim 23 wherein said control message processor includes a scheduler authorization message (SAM) processor to transmit on the control channel one or more SAMs to each of the plurality of nodes.

25. (Previously Presented) The network of Claim 23 wherein the control and data channels are separate from each other.

26. (Previously Presented) The network of Claim 23 wherein the individual data channels and control channels are distinguished by wavelength.

27. (Previously Presented) The network of claim 25, wherein the control channel is out-of-band from the data channel.

28. (Currently amended) A method comprising:

periodically polling a plurality of nodes in a local-area optical wavelength division multiplexed (WDM) network to obtain statistical information on the plurality of nodes, said polling comprising sending a first control packet to each of the plurality of nodes over a control channel, the first control packet specifying a scheduler as a destination node, wherein each of the plurality of nodes sends feedback to the scheduler over a data channel in response to the first control packet, wherein the scheduler is in the only node that transmits on the control channel; and

in response to a request from one of the plurality of nodes, transmitting a second control packet from the scheduler in the WDM network over the control channel of the WDM network, the second control packet including a first value corresponding to an amount of information which the one of the plurality of nodes can transmit, and a preview of a third control packet.

29. (Currently amended) The method of claim 28, wherein the control channel and the data channel are in ~~an~~a unidirectional optical path within the WDM network.

30. (Previously Presented) The method of claim 29, further comprising:
in response to a second request from a second one of the plurality of nodes,
transmitting the third control packet from the scheduler over the control channel after
waiting the predetermined period of time, the third control packet specifying a second
value corresponding to a second amount of information which the second one of the
plurality of nodes can transmit, wherein the second value differs from the first value.

31-34. (Canceled)

35. (Previously Presented) The method of claim 8, wherein the preview in the control packet comprises information specifying a second source node of the second control packet, and said method further comprises:
in response to the second source node receiving the first control packet, the second source node preparing to send data according to the preview in the first control packet.

36. (Canceled)

37. (Currently amended) A method comprising:

receiving a first control packet over a control channel of a wavelength division multiplexed (WDM) network, the first control packet specifying a first one of a plurality of nodes in the WDM network as a source node, a second one of the plurality of nodes in the WDM network as a destination node, a value which corresponds to an amount of information which the source node can transmit, and a preview of a second control packet;

in response to the first control packet, ~~a third one of the plurality of nodes~~ retrieving, at a third one of the plurality of nodes, a plurality of data packets based on the preview of the second control packet;

receiving the second control packet over the control channel after at least a predetermined period of time related to the value specified in the first control packet; and

in response to the second control packet, ~~the third one of the plurality of nodes~~ transmitting from the third one of the plurality of nodes the plurality of data packets over a data channel of the WDM network.

38. (Previously Presented) The method of claim 37, wherein the first and the second control packets are from a scheduler of the WDM network.

39. (Canceled)

40. (New) A method comprising:

using a scheduler in a headend of an optical wavelength division multiplexed (WDM) network to schedule asynchronous, unslotted, tokenless communication between a plurality of nodes on the WDM network, said communication being performed over a data channel of the WDM network;

using the scheduler to control transmissions from each of the plurality of nodes to the scheduler, so that the transmissions from each of the plurality of nodes to the scheduler are collision-free, wherein the plurality of nodes do not make reservations to gain access to the data channel; and

transmitting data from a first node of the plurality of nodes to a second node of the plurality of nodes on a data channel of the WDM network, based on a scheduling message from the scheduler.

41. (New) A method as recited in claim 40, wherein the method comprises using a control channel separate from the data channel to communicate scheduling messages from the scheduler to the plurality of nodes, and wherein of the plurality of nodes, only the headend transmits on the control channel.

42. (New) A method as recited in claim 41, wherein the plurality of nodes other than the headend use the data channel and not the control channel for transmission of information to the scheduler.

43. (New) A method as recited in claim 42, wherein all transmissions from the nodes to the scheduler are scheduled by the scheduler.

44. (New) A method comprising:

scheduling packet transmissions by using a scheduler in a wavelength division multiplexed (WDM) network, the WDM network comprising the scheduler, a plurality of nodes, and a unidirectional optical path coupling the scheduler and the plurality of nodes to each other, the unidirectional optical path having a control channel and a data channel, said scheduling comprising

originating and sending a first control packet from the scheduler to a first node of the plurality of nodes to cause the first node to transmit information to a second node immediately or after a delay known to the scheduler and the first node, wherein the first control packet includes information identifying the first node as a source node, information identifying the second node as a destination node, and a value which corresponds to an amount of information which the source node can transmit; and

using the scheduler to schedule and provision for feedback from the plurality of nodes to the scheduler.

45. (New) The method of claim 44, wherein using the scheduler to schedule and provision for feedback from the plurality of nodes to the scheduler comprises:

sending a third control packet over the control channel to each of the plurality of nodes specifying the scheduler as a destination; and
receiving the feedback from the plurality of nodes over the data channel as scheduled in the third control packet.

46. (New) The method of claim 44, further comprising:

the plurality of nodes simultaneously transmitting and receiving a plurality of data messages on the plurality of unidirectional optical paths.

47. (New) The method of claim 45, wherein the plurality of unidirectional optical paths are configured into loops through which packets are transmitted.

48. (New) The method of claim 45, wherein the plurality of nodes transmit and receive a plurality of data messages on the unidirectional optical path using a single wavelength.

49. (New) The method of claim 44, wherein nodes do not use the control channel to transmit to the scheduler.